DEC STD 066-0 Digital Design Standards

DOCUMENT IDENTIFIER: A-DS-EL00066-00-0000 Rev D, 21-Jul-1992

ABSTRACT: This standard lists the Digital design standards required for the design of Digital products.

APPLICABILITY: This standard is mandatory for all Digital personnel involved in designing or specifying the design of any Digital product worldwide. This includes products purchased for resale. Exceptions to these requirements are authorized only by a waiver in accordance with the requirements in DEC STD 066-2 Waivers to Digital Design Standards, unless otherwise stated in the design standard.

STATUS: Approved 21-Jul-1992; use VTX SMC for current status.

This document is confidential and proprietary, and is the property of Digital Equipment Corporation. It is an unpublished work protected under applicable copyright laws.

© Digital Equipment Corporation. 1987, 1992. All rights reserved.

DEC STD 066-0 Digital Design Standards

DOCUMENT IDENTIFIER: A-DS-EL00066-00-0000 Rev D, 21-Jul-1992

REVISION HISTORY:	Rev A,	23-Jun-1986	
	Rev B,	02-Nov-1987	ECO Number LJO01
	Rev C,	04-Apr-1990	ECO Number CTS02
	Rev D,	21-Jul-1992	ECO Number NRO03

Document Management Category:	Product Criteria/Waivers (TPW)
Responsible Department:	Corporate Product Safety and Regulations
Responsible Person:	Michael Neuffer
SMC Writer:	Thomas Goodwin

APPROVAL: This document has been reviewed and recommended for approval by the General Review group for its category and the DEC STD 066-0 Advisory Committee.

Michael Neuffer - Corporate Product Safety and Regulations

Eric Williams - Standards Process Manager

Direct requests for further information to:

Michael Neuffer
Use $ VTX ELF for the latest location information.

Use VTX SMC to order copies of this document from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

The DIGITAL logo is a trademark of Digital Equipment Corporation.

CONTENTS

1 INTRODUCTION 1
1.1 PURPOSE 1
1.2 SCOPE 1
2 DIGITAL DESIGN STANDARDS 2
Appendix A REFERENCED DOCUMENTS 7
A.1 EL-Class Digital Documents 7

1 INTRODUCTION

Digital develops, manufactures, sells, installs, and maintains products that meet the requirements of all Digital design standards.

Identification of applicable design standards and conformance to the requirements defined in those standards must be addressed for each product to be sold by Digital before that product exits Phase 1 of the phase review process. Refer to *DEC STD 028-0 Phase Review Policy*. It is recommended that the Product Manager or the Responsible Engineer for the product or both address this requirement as early as possible in Phase 1.

If the product plan for a Digital product does not include the intent to conform to the requirements defined in applicable standards during Phase 1, a waiver is required. Refer to *DEC STD 066-2 Waivers to Digital Design Standards*. An Engineering Change Order (ECO) or other design change that causes a deviation from the design requirements in applicable standards requires a waiver in accordance with DEC STD 066-2. A change in a design requirement in a standard that causes nonconformance of existing products shall be handled as specified in that standard.

1.1 PURPOSE

This standard lists the internal design standards that must be complied with in the design, development, and manufacture of products to be sold by Digital worldwide. It identifies the applicable design standards for Digital Service, Hardware Design, Manufacturing, Systems and Architecture, and Technical Information Management.

1.2 SCOPE

This standard applies to all products to be sold by Digital worldwide, and lists all mandatory Digital design standards.

Some Digital design standards adopt third-party standards by reference. Adherance to these adopted standards is required to the extent stated in the adopting Digital standard.

This standard does not list the process standards required for Engineering, Manufacturing, and other groups that have chosen to build or support products; such standards are not required for the design process.

NOTE

Digital standards are mandatory. This document focuses only on design-related standards. Refer to VTX SMC for a complete on-line directory of Digital standards and related documents, abstracts, and the responsible person and group.

2 DIGITAL DESIGN STANDARDS

Following is a numerical listing of *all* Digital standards governing the design process. These standards are mandatory when they apply; any intended deviation requires a waiver in accordance with the requirements of DEC STD 066-2 unless otherwise stated in specific standards.

Up-to-date listings of Digital standards *by design type* can be found on VTX SMC; select the *Waivers* menu to review the lists.

DEC STD 002-0	*AC Power Wiring, Safety Earth Grounding, Plugs and Receptacle Information and Requirements*
DEC STD 002-1	*Power Controller Units - General Requirements*
DEC STD 003-0	*Hardware Documentation Standard*
DEC STD 009-1	*Product Engineering Specifications: Electrical, Physical, and Environmental Parameters*
DEC STD 009-2	*Product Engineering Specifications: Reliability, Availability, and Maintainability Parameters*
DEC STD 012-0	*Part Identification Standard*
DEC STD 012-1	*Documentation Identification Conventions Including Mnemonic Codes*
DEC STD 012-2	*Unified Numbering Code for Part Identifier Class Codes*
DEC STD 012-3	*Packaged System Identification Standard*
DEC STD 012-4	*Unified Numbering Code (UNC) - Software Numbering Conventions*
DEC STD 012-6	*Digital Services EIC Numbering Conventions*
DEC STD 012-7	*Unified Numbering Code - 74 Class Part Numbering Conventions and Assignment Procedures*
DEC STD 012-8	*Digital Services Part Identifier Conventions*
DEC STD 012-9	*Unified Numbering Code - 94-Class Tool Numbering Conventions and Assignment Procedures*
DEC STD 012-10	*Conventions Used to Assign Part Identifiers with Significance in Part Classes 11, 15, 19, 21, and 91*
DEC STD 012-11	*Unified Numbering Code for Vendor Equipment Services (VES)*
DEC STD 012-12	*ER-Class Numbering Code for Supplier-Written Manuals*
DEC STD 015-0	*Abbreviations and Units of Measurement*
DEC STD 020-0	*Cast Metal Parts*
DEC STD 030-0	*Module Manufacturing Standard - Introduction and General Information*
DEC STD 030-1	*Module Manufacturing Standard - General Producibility Requirements*
DEC STD 030-2	*Module Manufacturing Standard - Product Safety Requirements*
DEC STD 030-3	*Module Manufacturing Standard - Component Selection Rules*
DEC STD 030-4	*Module Manufacturing Standard - Printed-Wiring Board Design Requirements*
DEC STD 030-5	*Module Manufacturing Standard - Module Assembly and Component Insertion Rules*
DEC STD 030-6	*Module Manufacturing Standard - Module Testability Rules*
DEC STD 030-7	*Module Manufacturing Standard - Backplane Rules and Related Factors*
DEC STD 030-8	*Module Manufacturing Standard - Rules for Power Supplies and Nonplug-in Modules*
DEC STD 030-10	*Module Manufacturing Standard - Footprint Design for Surface Mount Technology*
DEC STD 031-2	*Product Serialization - Site Codes*
DEC STD 032-0	*VAX Architecture Standard*
DEC STD 038-0	*System Evaluation of New Products - General*
DEC STD 038-1	*Systems Evaluation of New Products - Software*
DEC STD 038-2	*Systems Evaluation of New Products - Hardware*
DEC STD 041-0	*Customer Installability: Product Requirements*

DEC STD 042-0	*Hardware Installation Manuals for Customer-Installable Products*
DEC STD 043-0	*Packaging Requirements for Digital Products, Parts, Assemblies, and Materials*
DEC STD 045-0	*Packaging Products for International Shipment - Introduction*
DEC STD 045-1	*Packaging Products for International Shipment - Design Requirements and Procedures*
DEC STD 047-0	*Bar Code Symbology Criteria*
DEC STD 047-1	*Bar Code: Product and Shipping Carton/Container Labelling*
DEC STD 048-0	*Metallic Raw Material Selection and Identification*
DEC STD 049-0	*Document Transmission (DX) Standard*
DEC STD 052-0	*Operational Requirements for Serial Terminals and Computer Interfaces Operating as DTEs Connected to EIA RS-232-C or CCITT V.28 Modems*
DEC STD 052-1	*Operational Requirements for Serial Terminals and Serial SystemInterfaces Operating as DTEs Connected to EIA/TIA-232-E or CCITT V.28*
DEC STD 052-2	*Electrical Requirements for Binary Interfaces That Conform to EIA RS-232-C or CCITT V.28 Modems*
DEC STD 052-3	*Automatic Calling and/or Answering Equipment on the GSTN Using the 100 Series Interchange Circuits*
DEC STD 052-4	*Local Direct Connection (no Modem) for Serial Asynchronous Terminals and System Interfaces*
DEC STD 053-0	*Interface Between Data Circuit-Termination Equipment and Public Switched Telephone Network (PSTN) in the U.S. and Canada*
DEC STD 053-1	*Interface Between Data Circuit-Terminating Equipment and the Public Switched Telephone Network (PSTN) - Worldwide*
DEC STD 057-0	*VAXBI Standard*
DEC STD 060-0	*Design of Hardware Products to National and International Regulations and Standards, Policies and Procedures*
DEC STD 062-0	*Product Submittal to Regulatory Agencies*
DEC STD 062-2	*German EMI Certification/Approval Process*
DEC STD 064-0	*Compliance with International Language Requirements*
DEC STD 066-3	*Policy for Designing Products for All Countries Designated As Strategic Markets*
DEC STD 067-0	*Electrostatic Discharge - Sensitive Devices*
DEC STD 067-1	*Electrostatic Discharge-Sensitive Devices: In Engineering Facilities*
DEC STD 067-2	*Packaging of Electrostatic Discharge-Sensitive Devices: Procedures and Protective Packaging Materials*
DEC STD 068-0	*Policy for Documentation of Revision Levels of Units and Combinations of Units*
DEC STD 070-3	*Video Systems Standard - Code Extension Layer*
DEC STD 070-4	*Video Systems Reference Manual - Terminal Management*
DEC STD 070-5	*Video Systems Reference Manual— Character Cell Display*
DEC STD 070-6	*Video Systems Reference Manual - Keyboard Processing*
DEC STD 070-7	*Video Systems Reference Manual - Printer Port Extension*
DEC STD 070-8	*Video and Printer Standards Reference Manual - ReGIS Graphics Extension*
DEC STD 070-9	*Video and Printer Systems Reference Manual - SIXEL Graphics Extension*
DEC STD 070-10	*Video Systems Reference Manual, Dynamically Redefinable Character Sets Extension*
DEC STD 070-11	*Video Systems Reference Manual - User Defined Keys Extension (UDK)*
DEC STD 070-12	*Video Systems Reference Manual - Terminal Synchronization*
DEC STD 070-13	*Video Systems Reference Manual— Text Locator Extension*
DEC STD 073-0	*Manufacturing and Packaging for Publications*
DEC STD 073-3	*Electronic Media Master for Software Engineering*

DEC STD 074-0	*Printer Systems Standard - Introduction*
DEC STD 074-2	*Printer Systems Standard - Terminology*
DEC STD 074-6	*Printer Systems Standard - Page Coordinate System*
DEC STD 074-8	*Printer Systems Standards - Tabs*
DEC STD 074-9	*Printer Systems Standard - Positioning Control Functions*
DEC STD 074-10	*Printer Systems Standard—Interword Justification*
DEC STD 074-11	*Printer Systems Standard - Display Attributes*
DEC STD 074-12	*Printer Systems Standard - Font Management Control Functions*
DEC STD 074-14	*Font File Format User's Manual*
DEC STD 074-15	*Printer Systems Standard - Text Ruling Vector Functions*
DEC STD 074-17	*Printer Systems Standard - Color Functions*
DEC STD 076-0	*Plastics Selection and Identification*
DEC STD 080-0	*Digital Product Safety Industrial Control Equipment -Introduction and General Requirements*
DEC STD 080-1	*Digital Product Safety Industrial Control Equipment - Design Criteria*
DEC STD 080-2	*Digital Product Safety Industrial Control Equipment - Test Methods*
DEC STD 089-0	*Semiconductor Mask Works Program*
DEC STD 092-0	*Finish and Color Standard - Introduction and General Requirements*
DEC STD 092-1	*Finish and Color Standard—Finish Standard for Applicators*
DEC STD 092-2	*Finish and Color Standard—Finish Material Standard for Suppliers*
DEC STD 092-3	*Finish and Color Standard - Finish Material Test Requirements*
DEC STD 092-4	*Finish and Color Standard - Approved Finish Specifications*
DEC STD 092-5	*Finish and Color Standard—Digital Color List*
DEC STD 092-6	*Finish and Color Standard—Digital Approved Paint Suppliers and Material Identification*
DEC STD 092-7	*Finish and Color Standard—Plastic Color Control and Material Identification*
DEC STD 092-8	*Finish and Color Standard—Touch-Up and Repair Procedures*
DEC STD 102-0	*Environmental Standard for Computers and Peripherals - General Test Requirements*
DEC STD 102-1	*Environmental Standard for Computers and Peripherals— Temperature, Humidity, and Altitude Test Requirements*
DEC STD 102-2	*Environmental Standard for Computers and Peripherals—Mechanical Shock and Vibration Test Requirements*
DEC STD 102-3	*Physical Stability Requirements During Shipping and Handling*
DEC STD 102-4	*Environmental Standard for Computers and Peripherals — Product Acoustic Noise Measurement*
DEC STD 103-0	*Electromagnetic Compatibility (EMC) - Overview and Process Requirements*
DEC STD 103-1	*Electromagnetic Compatibility (EMC) - Documentation and Approval Process*
DEC STD 103-3	*Electromagnetic Compatibility (EMC) - Electromagnetic Interference (EMI) Requirements*
DEC STD 104-0	*Product Acoustic Noise Limits*
DEC STD 105-0	*Display Workstation Ergonomics (Human Factors): Design Criteria*
DEC STD 107-1	*Digital Standard for Terminal Keyboards - Registry of Graphic Character Sets*
DEC STD 107-2	*Digital Standard for Terminal Keyboards—LK201 Character Sets and LK250 Character Sets*
DEC STD 112-0	*Standard Date Format for Output*
DEC STD 119-0	*Digital Product Safety - Introduction and General Requirements*
DEC STD 119-1	*Digital Product Safety - Design Criteria*
DEC STD 119-2	*Digital Product Safety - Test Procedures*

DEC STD 119-5	*Process for Design, Evaluation, Testing, and Certification of Hardware Products to Product Safety Requirements*
DEC STD 120-0	*Product Thermal Design Standard: Design Requirements*
DEC STD 122-0	*AC Power Line Standard: Design Requirements and Guidelines*
DEC STD 122-1	*AC Power Line Standard - Measurement of AC Power Parameters*
DEC STD 123-0	*Power Control Bus Standard*
DEC STD 131-0	*Traceability Policy*
DEC STD 131-1	*Controlled Components*
DEC STD 131-2	*Telecommunications Controlled Components*
DEC STD 134-0	*The Digital Ethernet Specification*
DEC STD 136-0	*Digital Policy on Government-Regulated Materials in Digital Products*
DEC STD 136-3	*The Introductory and Review Processes for Digital Chemical Products*
DEC STD 138-0	*Registry of Control Functions for Character Imaging Devices*
DEC STD 139-0	*Reliability Prediction and Assessment*
DEC STD 146-0	*Standard Order of Pages in Manuals*
DEC STD 153-0	*Error Logging Standard*
DEC STD 158-0	*Unibus Specification - Design Specification*
DEC STD 160-0	*LSI-11 Bus Specification - Design Specification*
DEC STD 161-0	*Computer Interconnect Specification*
DEC STD 164-0	*Software Use of the Graphic Character Set of ASCII*
DEC STD 169-0	*DEC Standard Coded Graphic Character Sets for Hardware and Software*
DEC STD 169-1	*DEC Standard Coded Graphic Character Sets for Hardware and Software: Introduction*
DEC STD 176-2	*Printed-Wiring Board Product Safety Criteria*
DEC STD 178-0	*Digital Identification Marking Requirements - Introduction*
DEC STD 178-1	*Digital Marking Requirements for Piece Parts*
DEC STD 178-2	*Digital Marking Requirements for Subassemblies: Field Replaceable Units (FRU) and Non-Field Replaceable Units*
DEC STD 178-3	*Digital Marking Requirements for Completed Products Intended to be Sold*
DEC STD 178-4	*Shipping Container Marking Requirements for Finished Goods*
DEC STD 178-5	*Marking Symbology*
DEC STD 178-6	*Marking and Labeling Requirements for Diagnostic Tools and Diagnostic Software*
DEC STD 178-7	*Translations*
DEC STD 178-8	*General Shipping Documentation and Container Labeling Requirements for Finished Goods Intended to be Shipped to Customers*
DEC STD 178-9	*Shipping Container Marking Requirements for Goods in Process*
DEC STD 178-10	*Design Requirements for Product Markings*
DEC STD 179-0	*Requirements for Specifying Raw Materials for Powder_Metal Parts*
DEC STD 180-0	*Standard for Font File Identification*
DEC STD 186-0	*Signal Integrity*
DEC STD 197-0	*Legal Requirements and Guidelines for Digital Publications and Software*
DEC STD 198-0	*Technical Export*
DEC STD 200-1	*Digital Network Architecture - Maintenance Operations Functional Specification*
DEC STD 200-2	*Digital Network Architecture - Network Management Functional Specification*
DEC STD 200-3	*Digital Network Architecture - NI Node Product Architecture Specification*
DEC STD 200-4	*NSP Functional Specification*

DEC STD 200-5	*Digital Network Architecture - Routing Layer Functional Specification*
DEC STD 200-6	*Digital Network Architecture - Decnet X.25 Gateway Access Specification*
DEC STD 200-7	*Digital Network Architecture - Session Control Functional Specification*
DEC STD 200-10	*Digital Data Communications Message Protocol (DDCMP)*
DEC STD 200-11	*Digital Network Architecture - CSMA/CD Data Link Functional Specification*

APPENDIX A REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00028-00	*DEC STD 028-0 Phase Review Policy*
EL-00066-02	*DEC STD 066-2 Waivers to Digital Design Standards*

Use VTX SMC to order copies of EL-class documents from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

```
+---------------------------------------------------------------------+
|                        READER COMMENTS                              |
|                                                                     |
| Your  comments  and suggestions  will help  Standards and Methods   |
| Control improve their services and documents.                       |
+---------------------------------------------------------------------+
```

Did you request this document? _____ If so, did it arrive within a satisfactory period of time? _____ Please comment.

What are your impressions of this document? Consider format, organization, completeness, readability, and illustrations.

————————————**FOLD ON THIS LINE**———————————————————————— -

Did you find technical or clerical errors in this document? If so, please specify the page number(s) and the error(s).

Are the instructions for the update package clear? _____
Was an index available? _____ If not, is one needed? _____
Do you have other suggestions for improving this document?

The following information is optional:

Name _____ Mailstop _____

Department _____ Node _____

Send your comments to JOKUR::PROJECTS, or fold, staple, and send this page through interoffice mail to:

```
+------------------------------+
|       READERS' COMMENTS      |
| STANDARDS AND METHODS CONTROL |
|           NRO4/D4            |
+------------------------------+
```